UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT.

OCTOBER TERM, 1938.

No. 8876.

THE PACIFIC MARINE SUPPLY COMPANY
AND
WEBB PRODUCTS CO., INC.,
Appellants,

v.

THE A. S. BOYLE COMPANY,
Appellee.

BRIEF FOR PLAINTIFF-APPELLEE.

GEORGE P. DIKE,
CEDRIC W. PORTER,
DIKE, CALVER & GRAY,
for the Appellee.

G. WRIGHT ARNOLD,
Seattle, Washington,
Solicitor for Appellee.

L. H. LANE, Law Printer, 221 High Street, Boston

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STATEMENT OF THE CASE.

A more complete statement of the facts than is found in appellant's brief is necessary for an understanding of the case.

This is a suit for infringement of letters patent No. 1,838,618, dated December 29, 1931, to Manfred E. Griffiths, for a Plastic Composition, and assigned before issue to the plaintiff, the A. S. Boyle Company of Cincinnati. The application for the patent was filed November 17, 1923.

Claims 5, 8, 13, 16 and 17 were held valid and infringed. Other claims in suit were held not to be infringed and will not be discussed or referred to further.

The material manufactured by the plaintiff is sold under the trade name "Plastic Wood".

The defendant, Pacific Marine Supply Company of Seattle, is charged with infringing the patent in suit by selling "Duratite Wood Dough" manufactured by the intervener, Webb Products Company of San Bernardino, California. In the following pages, the defendant and the intervener, now the appellants herein, are referred to as

the defendants except where it is necessary to distinguish between them.

The case was tried in Tacoma before the Honorable Edward E. Cushman, District Judge. After the trial of the present case and before the decision by the District Court, the same claims of the patent and others were held valid and infringed by the District Court of Massachusetts in a suit entitled *The A. S. Boyle Company* v. *Harris-Thomas Company*, 18 F. Supp. 177. The District Court of Massachusetts had before it all of the defenses and all of the prior art relied upon in the present case. A copy of the decision in *Boyle* v. *Harris-Thomas* is printed as an Appendix to this brief, see page 52.

At the trial in the District Court the defendant herein relied on an English publication "Engineering" dated December 9, 1921, as an anticipation of the patent in suit and the plaintiff took the depositions of Griffiths, the patentee, and Murray in London to carry back Griffiths' dates of invention. This defense is not now relied on by the appellant and, therefore, the depositions of Griffiths and Murray and the exhibits attached to them found in the record are no longer of any consequence in the case. Appellants now rely only on the defenses mentioned on page 6 of appellants' brief.

SUMMARY OF ARGUMENT.

The patent in suit is for a plastic composition which, before exposure to the air has the consistency of putty, and after mere exposure to air attains the rigidity and solidity of wood, becoming in effect a grainless wood. When applied to a hole in a piece of wood and allowed to harden, the "Plastic Wood" adheres tenaciously and practically becomes a part of the wood itself. The essential ingredients of Griffiths' composition are nitrocellulose, a volatile solvent, a finely divided wood, *i. e.*, wood-flour. The composition may also contain, and does preferably, a non-drying oil like castor oil, and a resinous body or gum, like ester gum. These toughen the product and render it more adhesive. Some mineral filler such as talc, clay or gypsum may also be substituted for a part of the wood flour. Prior to Griffiths' invention no one had conceived of a material which could be handled like putty and which

after drying would become grainless wood. There was no material available to the public by which a low place or a defective spot in a piece of wood could be built up. The carpenter could cut wood away with his chisel, plane and bit but he could not replace it. He could not add wood. Griffiths gave the public a new tool; he provided for the first time a material by which wood could be built up.

Griffiths' invention was brought to the United States in 1924 under the name "Plastic Wood".* The manufacture and sale of this material was commenced in this country in 1925 by the Addison-Leslie Company, a company organized and controlled by Leslie Soule, who then controlled the Griffiths invention. In the five years from 1925 to 1930 the sales grew from nothing to $379,602 per year. In 1930 Addison-Leslie Company sold its business and the Griffiths patent to The A. S. Boyle Company, the plaintiff, for $720,000. The sales dropped with the depression and with competition of imitators like the intervener, but are now about $300,000 per year. Between two million and two million and a half cans and tubes of "Plastic Wood" are sold to the public each year.

The plaintiff's composition "Plastic Wood" is used for a multitude of purposes, both domestic and industrial. It has replaced putty in many places and it makes possible results never before attainable. The avidity with which it was seized on by the public is conclusive proof that it was both new and useful, in the highest sense of these terms.

Griffiths' invention was the result of a wholly novel concept, viz., that by combining nitrocellulose, wood flour and a volatile solvent, a plastic mass having the characteristics of putty could be made and that when the solvent evaporated from such a mass by mere exposure to the air without heat or pressure it would become a grainless wood and would adhere tenaciously to other substances. Griffiths' concept comprises five essential factors: (1) a putty-like condition before exposure to the air, (2) wood-like properties after exposure to the air, and the three primary ingredients, viz.,

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* When the phrase "Plastic Wood" is used in this brief it refers to the composition made under the Griffiths' patent and sold by the plaintiff and its predecessor, Addison-Leslie Company.

(3) nitrocellulose, (4) wood flour and (5) volatile solvent. If any of these factors be absent, Griffiths' concept cannot be realized. Griffiths also found that the toughness and adhesiveness of his material were increased by the addition of non-drying oil (castor oil) and a resinous gum (ester gum or the like); also that acetone was the best solvent. He also realized that, for some purposes, a harder and denser material would be useful so he provided for the substitution of a mineral filler, such as China clay, talc or the like, for a part of the wood flour, while retaining the wood-like properties of the final product. The essentials of Griffiths' invention are well stated in claims 5, 13 and 17 as follows:

> "5. A doughy putty-like plastic composition comprising nitrocellulose in a solution containing a volatile liquid, and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.
>
> 13. A doughy putty-like plastic composition comprising nitrocellulose in a solution volatile in part at least and containing acetone, castor oil, a resinous body, and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.
>
> 17. A composition of matter for hole filling and filleting, which before exposure to the air is dough-like and putty-like, and contains finely divided wood, nitrocellulose and a volatile liquid, and after exposure to the air has a wood-like rigidity and solidity and is essentially finely divided wood held together by the nitrocellulose."

The intervener's (Webb Products Company) product "Wood Dough" is made of the same main ingredients, nitrocellulose, wood flour and a volatile solvent. As stated on the cans of the intervener's product "Wood Dough", it "handles like putty and hardens into wood". An equal volume of gypsum has been substituted for a part of the wood flour suggested by Griffiths, but the total volume of filler in proportion to the volume of the other ingredients remains the same. Acetone is the chief solvent in

"Wood Dough" as in the Griffiths composition, and castor oil, ester gum and elemi gum have been added to give toughness and adhesive properties. The final composition is essentially the same as Griffiths' in its working properties; it is doughy and putty-like before hardening, and after exposure to the air has the solidity and rigidity of wood. It is essentially "finely divided wood held together by the nitrocellulose" as described in claim 17.

Defendants' counsel take the position that the Griffiths patent is anticipated by the United States patent to Pierson No. 65,267, dated May 28, 1867, and the British patent to Oblasser No. 19,242 of 1892 and further that the properties of nitrocellulose, volatile solvent, non-drying oils, gums and vegetable fillers alone or in combination were so well known that it required only mechanical skill to put them together and produce a putty-like material which would harden into wood. In support of this argument defendants cite a long list of patents. (See page 24 of defendants' brief.)

Defendants' argument is based on a fallacy, for it assumes that the mechanic would start with knowledge of Griffiths' concept that a material which would be putty-like in the first place and later would become essentially a grainless wood could be made with the materials in question. Defendants, therefore, rely on the *ex post facto* wisdom which has been so often condemned by the courts in patent cases. Without Griffiths' concept in mind, the prior art taught nothing; with it in mind, it is, of course, possible to make his composition from the materials mentioned in the prior patents. That plaintiff's position in this regard is correct is proved strikingly by the fact that, notwithstanding the grant of such patents as Pierson's in 1867 and Oblasser's in 1892, the public had to wait until 1920 for "Plastic Wood", and that when it appeared it filled a need so completely that its sales jumped from nothing to over two million cans and tubes in less than six years. If the Pierson patent taught the invention in 1867, as defendants say, it is more than strange that the public waited nearly sixty years before making use of it. But, in fact, Pierson did not describe the Griffiths composition at all. The nearest description is found on page 3, column 1, second full paragraph, but, that paragraph gives a range of proportions which will produce compositions varying

from a thin soupy liquid to a dry powder, and does not suggest a putty-like composition nor one which would dry to a wood-like substance. Even the defendant witness, Webb starting with knowledge of the ingredients of "Plastic Wood" had to make long series of mixtures before arriving at a satisfactory composition based on Pierson's description.

Nor are Oblasser's or Merrick's compositions more helpful—the former's was intended to be shaped in a mould, and the latter to be flexible and rubbery so that it could bend in the sole of a shoe. In neither is there any description of the Griffiths composition nor are proportions or instructions given by which such a composition could be made.

Defendants also argue that the claims of the patent are too broad, vague and indefinite and that the patent is invalid on that account. See Defendants' brief page 7, citing *General Electric Company* v. *Wabash Appliance Company,* 37 USPQ 466; 304 U. S. 364; 82 L. Ed. 912. In answer it need only be said that in fact the claims of the Griffiths patent define the monopoly clearly and explicitly; that they rely on ingredients and the physical properties of the materials as the means of definition, and that *General Electric* v. *Wabash* has no application to a state of facts such as the present.

More than the usual presumption of validity resulting from its grant attaches to the patent in suit. It was granted only after a long and bitter contest in the Patent Office and a suit against the Commissioner of Patents under Section 4915 (now U. S. Code, Title 35, Section 63). It has been held valid and infringed by Judge McLellan in the District Court of Massachusetts in *Boyle* v. *Harris-Thomas Co.*, 18 Fed. Supp. 177, the opinion being unusually thorough and comprehensive.

The patents now relied on by the defendants are in part the same as those relied on by the Patent Office and otherwise of the same general character. They were all before the District Court for Massachusetts. The Griffiths patent is further supported by the fact that the invention has supplied a public need, and has supplanted other materials; that it has become a household necessity, and has given the carpenter a new tool; that it has been copied not only by the defendants but also by at least two dozen other manu-

facturers; that decrees for injunctions have been obtained in three uncontested or slightly contested suits for infringement and finally that its validity has been recognized by numerous companies, including Sears-Roebuck Co., which have ceased the sale of the infringing composition and paid damages, and by the Creo-Dipt Company which was granted a license.

Accordingly, we respectfully submit that the patent in suit describes and claims an invention of more than ordinary merit, that the patent is valid and that the defendants have infringed.

In the following pages, the facts outlined above are first discussed in detail, and then the four alleged errors on which appellants (defendants) now relies are separately answered.

THE PATENT IN SUIT—PLAINTIFF'S EXHIBIT 1.

Exh. Bk. Page 1.

(a) The Disclosure.

Griffiths, in his patent, says (Exh. Bk. p. 1) that his invention "relates to a plastic mass . . . which may be used for many purposes", and he outlines some of the purposes as follows: "by pattern makers for filleting and similar work, by joiners and cabinet makers for filling screw and nail holes, shakes in timbers, openings at joints and for preparing or repairing mouldings and carvings or by shoemakers for building up or repairing lasts" (p. 1, lines 31–7). He says further that his composition "hardens quickly when exposed to the air, adheres firmly to any clean dry foundation, does not blister or powder when exposed to moderate heat and is not affected by water, gasoline or other commonly available liquids" (p. 1, lines 39–44).

The patent is unusually explicit in its directions for the manufacture of the new composition giving five formulae for its production. These are a general formula (p. 1, lines 50–6) with ranges of proportions, two specific formulae for a material made without mineral filler (p. 1, lines 14–27; and p. 1, lines 70–6), a formula using part China clay (p. 2, lines 11–19) and another using pigment (p. 2, lines 27–36).

As to the materials to be used, Griffiths is equally explicit. He says:

> "In place of celluloid scrap other forms of nitrocellulose may be used, such as celluloid in the form of sheet or the like." (Page 1, lines 77–79.)

> "In place of castor oil other non-drying vegetable oils may be employed." (Page 1, lines 80–1.)

> "Ester gum may be replaced by other resins and in place of acetone other ketones may be used and if it is desired that the composition shall set or dry quickly such should be of low boiling point, for example methyl acetone." (Page 1, lines 82–6.)

> "The industrial spirit and benzol may be omitted or replaced by other solvents or diluents." (Page 1, lines 87–9.)

> "Other solvents may be used in place of ketones but the latter are preferable. As fillers any suitable filling materials may be used but ground wood flour is preferable though in addition there may be added other ground cellulose material, a mineral filler, such as china clay, talc, powdered silica or the like." (Page 1, line 90; page 2, line 7.)

The formula in the first column of page 1 is almost exactly that used today by plaintiff in the manufacture of its commercial product which has attained such a wide sale under the name "Plastic Wood".

The patent also describes the method of putting together the several ingredients to make the product ready for use and explains how it hardens when exposed to the air (p. 1, lines 38–40). He also says that it "adheres firmly to any clean dry foundation".

Anyone into whose hands this patent may come will find in it full and complete directions for making Griffiths' preferred composition.

(b) Griffiths' Novel Concept.

Griffiths envisioned an entirely new material—a putty that would turn into wood and therefore which could be used to build up a piece of wood. He envisioned a piece of wood without grain which could be cut with a chisel, which could be sawn and drilled,

which would hold nails and screws like real wood but which could be handled and applied like putty. This was Griffiths' concept. It is stated by Dr. Esselen, plaintiff's expert, as follows:

> "The material, . . . is of the general consistency of dough or putty, and after it has dried it has the general properties of wood with the exception that it has no grain." (Rec. p. 112.)

Griffiths made his vision a reality by combining nitrocellulose, volatile solvent and wood flour, and improved the physical properties of the material by the addition of castor oil and a resinous body. These three essential ingredients will make satisfactory material although it will not adhere to other substances as well nor be as tough or adhesive as it would be if it contained proper percentages of a resin and a non-drying oil.

Soule testified:

> "We have [made] one or two small batches of the Griffiths composition, omitting the castor oil and the ester gum, using only the three ingredients, viz., the solvent wood flour, and the nitro-cellulose or film scrap. Such material, in appearance, was identical with our regular material that contained ester gum and castor oil but it was more brittle and did not have as good adhesive qualities. It was however a practical and useful material. It was essentially the same as Plastic Wood and could be used, but it was not so satisfactory as the material containing the ester gum and castor oil." (Rec. pp. 156–157.)

The Griffiths' concept, therefore, included five necessary factors which have already been enumerated. They are as follows:

(1) The condition before drying—it must be putty-like.

(2) The condition after drying—it must have substantially the rigidity and solidity of wood after mere exposure to the air.

(3) It must contain *nitrocellulose.*

(4) It must contain *finely divided cellulose* filler such as wood flour, and

(5) It must contain *a volatile solvent* such as acetone.

In its more specific form Griffiths' concept also included resinous materials, non-drying oil and a small amount of some mineral

filler such as China clay to improve the quality of the final product. Unless a material corresponds to all five factors of Griffiths' concept, it will not infringe the claims. Likewise, the claims will not be anticipated by any prior patent, publication or public use unless all given factors are clearly and definitely present.

The presence or absence of the additional or non-essential materials (non-drying oil, ester gum, and mineral filler) is relatively unimportant.

(c) The Materials Employed by Griffiths.

Nitrocellulose. In the patent in suit (Exh. Bk. p. 1) Griffiths uses nitrocellulose as a general term but says "in place of celluloid scrap *other forms* of nitrocellulose may be used as celluloid in the form of sheet or the like" (page 1, line 2). Therefore, the patent gives explicit direction as to the kind of nitrocellulose to be used.

Volatile Solvents. For solvents, Griffiths mentions a wide variety. He says:

> ". . . in place of acetone other ketones may be used and if it is desired that the composition shall set or dry quickly such should be of low boiling point, for example methyl acetone.
>
> The industrial spirit and benzol may be omitted or replaced by other solvents or diluents.
>
> Other solvents may be used in place of ketones but the latter are preferable." (Page 1, line 83, to page 2, line 1.)

Filler. In the primary formula, page 1, lines 14 to 27, Griffiths specifies "finely ground wood flour as a filling material"; in the third formula, page 2, lines 70 to 76, he specifies wood flour; and in the two formulae on page 2 he specifies wood flour and China clay in the first and wood flour and pigment in the second.

With regard to the fillers to be employed he makes the following general statement:

> "As fillers any suitable filling materials may be used but *ground wood flour* is preferable *though in addition* there may be added other ground cellulose material, a mineral filler such

as China clay, talc, powdered silica or the like". (Page 2, lines 1–7.)

Griffiths intended that wood flour or a similar finely divided cellulose material should be the basic filler of his material and that "in addition" or as a substitute for a part of the wood flour certain finely divided mineral substances could be added. Such substances tend to modify the characteristics of the final product slightly, but Griffiths emphasis on wood flour and the fact that it is the principal filler in all five formulae show that he wished to produce wood-like qualities in the final product.

The mineral substances which can be used in place of wood flour as a filler are relatively very heavy; therefore they occupy much less space than wood flour. For instance, the bulk of gypsum used by defendants is approximately one-fifth that of wood flour (Esselen, Rec. pp. 40–41) ; or, stated in another way, weight-for-weight, gypsum occupies about one-fifth the space of wood flour. China clay, powdered silica and the like are still heavier. Griffiths gives his proportions in terms of parts by weight; consequently the proportions of mineral fillers appear about five times greater than they would if they were stated in terms of volume or bulk. Griffiths contemplated the use of relatively small volumes of mineral filler.

(d) The Claims.

Claims 5, 8, 13, 16 and 17 are in suit.

"5. A doughy putty-like plastic composition comprising nitrocellulose in a solution containing a volatile liquid, and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.

8. A doughy putty-like plastic composition comprising nitrocellulose in a solution containing a volatile liquid, a *non-drying oil* and a finely divided wood filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.

13. A doughy putty-like plastic composition comprising

nitrocellulose in a solution volatile in part at least and containing acetone, *castor oil,* a resinous body, and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.

16. A doughy, putty-like plastic composition comprising nitrocellulose in a solution containing a volatile liquid, a *non-drying oil, and a resinous body,* and a finely divided wood filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.

17. A composition of matter for hole filling and filleting, which before exposure to the air is dough-like and putty-like, and contains finely divided wood, nitrocellulose and a volatile liquid, and after exposure to the air has a wood-like rigidity and solidity and is essentially finely divided wood held together by the nitrocellulose."

Claim 5 specifies the five essential factors of Griffiths' invention, namely, (1) a doughy putty-like plastic comprising (2) nitrocellulose in a solution containing (3) a volatile liquid (4) a finely divided cellulose filler and (5) hardening "upon mere exposure to air to substantially the rigidity and solidity of wood". This is a basic claim to Griffiths' invention.

Claim 17 is much the same as claim 5 but the invention is stated in quite different language and from a different point of view. This claim differs from the others in that it says that the final product "is essentially finely divided wood held together by the nitrocellulose".

Claims 8, 13 and 16 are more specific claims since they include as elements the "non-drying oil", "castor oil", and "a resinous body", *i. e.,* ester gum or the like.

Infringement.

The alleged infringing material sold by the defendant, Pacific Marine Supply Company, and manufactured by the Intervener, Webb Products Company, is called "Duratite Wood Dough". A specimen of it was introduced as Plaintiff's Exhibit 47.

Intervener's answer to interrogatory 7, Rec. page 45, gives the analysis of Duratite Wood Dough as follows:

> "The correct analysis of Duratite Wood Dough is as follows: Solvent, 41% by weight; nitrocellulose 10.5% by weight; gums and oils, 5.7% by weight; filler, 11.5% by weight; inorganic materials, 31.3% by weight."

On cross examination Mr. Webb gave the formula from his work sheet as follows:

> "It is chemically pure acetone, ester gum, gum elemi, benzol, film of three different nitrations, dibutyl, phthalate and castor oil. We use as fillers finely ground wood fiber 11 percent, inert material 30 percent," (Rec. p. 297.)

Dr. Esselen identified the inert material as gypsum (Rec. p. 116). He also stated that the bulk of wood flour is approximately five times that of gypsum "the wood flour taking up approximately five times as much space as the equal weight of gypsum" (Rec. p. 119). This is illustrated by the two bottles which are Plaintiff's Exhibits 35 and 45 and which contain equal weights of wood flour and gypsum (Rec. pp. 119–120). The 31.3 parts of gypsum referred to in the answer to the interrogatory has a bulk of only a little more than one-half that of the 11.5 parts of wood flour (Rec. p. 120).

"Duratite Wood Dough" has essentially the consistency of "Plastic Wood" before drying (Esselen, Rec. p. 120). See also Plaintiff's Exhibit 47. After hardening, it becomes a substance resembling wood* and can be used in the same way as "Plastic Wood" (Esselen, Rec. p. 120).

As already stated the formula for defendants' "Duratite Wood Dough" given in the Answer to the Interrogatories is as follows:

Celluloid scrap (nitrocellulose)	10.5%
Oils & Gums	5.7
Solvents	41.
Wood Flour	11.5
Gypsum	31.3

* Compare the two fillings in Exh. 46.

Since the bulk of a given weight of powdered gypsum is about one-fifth that of an equal weight of wood flour, 31.3 parts by weight of mineral filler have a volume equal to 6.26 parts of wood flour. This gives the following proportions—

Total filler on basis of volume:

Wood flour	11.5	
Gypsum	6.26	17.8
Nitrocellulose		10.5
Oils & Gums		5.7
Solvents		41.
		75.0%

If we convert the formula given in the first column of page 1 of the Griffiths patent into percentages of the whole to place the Griffiths and the Duratite formulae on a comparable basis, we have—

The Patent in Suit.		*Defendant's Composition.*	
Wood flour	23.1	Wood flour	15.3
		Gypsum	8.3
Total filler	23.1		23.7
Nitrocellulose	13.		14.
Oils & Gums	10.		7.6
Solvents	53.9		54.7
Total	100.	Total	100.

The defendants' composition therefore contains almost identical proportions of the same ingredients, the only difference being that the defendants have replaced a part of the wood flour by gypsum, while retaining enough wood flour to give the product wood-like properties.

As to the gums and oils, "Duratite Wood Dough" contains both castor oil and ester gum as suggested by Griffiths. In addition it contains gum elemi which is the equivalent of ester gum. Castor oil is a non-drying oil and the gums are resinous bodies. In addition to the above mentioned ingredients "Duratite Wood Dough"

also contains dibutyl phthalate (Rec. p. 262) which is a plasticizer and is the equivalent of castor oil.

The Claims Applied to Defendants' Composition.

The claims require very little discussion.

Claim 5 is as follows:

> "5. A doughy putty-like plastic composition comprising nitrocellulose in a solution containing a volatile liquid, and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood."

Defendants' "Duratite Wood Dough" contains nitrocellulose (celluloid scrap). It contains a volatile solvent, *i. e.*, acetone and benzol. It also contains wood flour in such proportions that on mere exposure to the air, the mixture hardens to substantially the rigidity and solidity of wood.

Claim 8 specifies a non-drying oil. Defendants' composition contains castor oil, which is a non-drying oil.

Claim 13 specifies acetone, castor oil and a resinous body. "Duratite Wood Dough" contains acetone, castor oil, ester gum and gum elemi.

Claim 16 is substantially like claim 8 except that it includes also a resinous body. "Duratite Wood Dough" contains ester gum which is a resinous body.

Claim 17 is as follows:

> "A composition of matter for hole filling and filleting which before exposure to the air is doughlike, and putty-like, and contains finely divided wood, nitrocellulose and a volatile liquid, and after exposure to the air has a wood-like rigidity and solidity and is essentially finely divided wood held together by the nitrocellulose."

When "Duratite Wood Dough" has hardened, it is "essentially finely divided wood held together by nitrocellulose".

We respectfully submit that all the claims sued upon are infringed.

FACTS WHICH SUPPORT THE VALIDITY OF THE PATENT IN SUIT.

A. GREAT COMMERCIAL SUCCESS OF GRIFFITHS' COMPOSITION.

1. The Introduction of Plastic Wood and the Growth of the Business.

Manfred E. Griffiths, the patentee, is an Englishman employed by the Imperial Chemical Industries as a research chemist (Rec. p. 334). He made the invention in 1920 (Rec. p. 336). The first information in regard to the product was brought to the United States by C. Tennant & Sons Company and Harrison White, Inc., in the fall of 1924 (Soule, Rec. p. 155). In May, 1925, Leslie Soule organized the Addison-Leslie Company and secured a license to manufacture "Plastic Wood" in the United States (Rec. p. 155). The Addison-Leslie Company put the new material on the market under the name "Plastic Wood" (Rec. p. 155). The present formula of "Plastic Wood" is practically identical with the first formula given in the Griffiths patent, the only difference being in the solvent employed (Rec. p. 156). The annual sales of "Plastic Wood" have been as follows:

From May 25, 1925 to December 31, 1925	$12,759
For the year 1926	58,024
For the year 1927	140,449
For the year 1928	258,464
For the year 1929	378,965
For the year 1930	379,602

(Soule, Rec. p. 162.)

For the year 1931	298,000
For the year 1932	209,000
For the year 1933	206,000
For the year 1934	278,000
For the year 1935	309,000
Total	$2,527,663

(Silbersack, Rec. p. 170.)

In the summer of 1930 the plaintiff, The A. S. Boyle Company, purchased the Addison-Leslie Company, together with the application for the patent in suit, paying approximately $720,000 (Soule, Rec. p. 167, and Silbersack, Rec. p. 169). The advertising expenditures for the sale of "Plastic Wood" have averaged about $50,000 a year. (See Stipulation attached to Soule's deposition, Rec. p. 168, and Silbersack, p. 170.)

This apparently large amount of advertising was necessary because the product was an entirely new one and it was necessary to tell the public about its properties and its uses. Soule testified as follows:

> "The particular purpose of the advertising done by the Addison Leslie Company was to acquaint the potential users of Plastic Wood with what we considered to be an entirely new and revolutionary product. We had to find the field for the marketing of the product, and to acquaint the potential users with the fact that there was such a product." (Rec. p. 167.)

The plaintiff sells from two to two and one-half million tubes or cans of "Plastic Wood" annually (Silbersack, Rec. p. 170). The material is sold in tubes, in quarter pound cans, in one pound cans and in five and twenty-pound drums (Silbersack, Rec. p. 170).

Commercial Success is Persuasive Evidence of Patentability.

The marked commercial success of a new product, such as that which attended the introduction of "Plastic Wood" is persuasive evidence of invention, see the decision of this Court in *Bankers' Utilities Co., Inc.* v. *Pacific Nat. Bank et al.*, 18 F. (2d) 16, March 28, 1927, in which Judge Dietrich said (p. 18):

> "In their position plaintiffs are fortified by the presumptions attending a patent (*Wilson & Willard Mfg. Co.* v. *Bole* (C. C. A.) 227 F. 607; *Heinz Co.* v. *Cohn* (C. C. A.) 207 F. 547; *San Francisco C. Co.* v. *Beyrle* (C. C. A.) 195 F. 516), and *by the*

fact that their device is a commercial success and has brought on imitation. (*Application of McClaire* (C. D.), 16 F. (2d) 351; *Sandusky* v. *Brooklyn Box Toe Co.* (D. C.) 13 F. (2d) 241; *Carson* v. *Am. Smelting Co.* (C. C. A.) 4 F. (2d) 463; *Murphy Wall Bed Co.* v. *Rip Van Winkle Wall Bed Co.* (D. C.) 295 F. 748; *Globe Knitting Works* v. *Segal* (C. C. A.) 248 F. 495; *Morton* v. *Llewellyn* (C. C. A.) 164 F. 697."

See also:

Eibel Process Co. v. *Minnesota & Ontario Paper Co.*, 261 U. S. 45 at 56.
The Barbed Wire Patent, 143 U. S. 275 at 282.
Smith v. *Goodyear Dental Vulcanite Co.*, 93 U. S. 486.
Temco Electric Motor Co. v. *Apco Mfg. Co.*, 275 U. S. 319.

In the latter case the Supreme Court said:

"The district judge in Ohio in the K-W Ignition case was affected in his decision, that the Thompson patent involved invention, *by the way in which the public eagerly took it and its marked success,* and so, indeed was the Circuit Court of Appeals of the Sixth Circuit. **So are we.**"

Furthermore when "Plastic Wood" was first put on the market there was no material which would perform the same functions as the Griffiths material.

"At the time I put the Griffiths Plastic composition on the market, as far as I know there was no other material which would perform substantially the functions of the Griffiths composition. There was no other material which could be compared in any way with 'Plastic Wood' to my knowledge. The nearest was ordinary lead putty and certain mineral fillers. They were the only things on the market, to my knowledge, and they cannot be compared with 'Plastic Wood'.

The Griffiths' composition has replaced putty and mineral crack fillers, and in furniture work has replaced stick shellac."

(Soule, Rec. p. 161.)

See also Silbersack, Rec. page 170:

> "In my contact with the hardware trade I knew of no other product which was sold for that same purpose by the trade.
>
> . . . . . .
>
> I was in contact with the hardware trade more or less regularly as sales manager of The A. S. Boyle Company . . . From Maine to California."

See also Miller, Rec. page 189.

> "This is the first artificial wood I know of."

This resume of the evidence shows that the material made under the Griffiths formula and referred to in this case as "Plastic Wood" has had a total sale of slightly over two and one-half million dollars in the ten years during which it has been on the market. There was nothing like it on the market when it was introduced. The sales climbed rapidly until they were checked by the flood of infringements and imitations which will be referred to later. "Plastic Wood" has become a household word. Some of the many uses to which it has been put will now be outlined.

2. The Uses of Plastic Wood.

The Griffiths composition sold by the plaintiff under the name "Plastic Wood" has so many uses that it is difficult to enumerate them all. These facts are not disputed so we state them shortly. Soule mentioned the following uses of "Plastic Wood":

Filling dents and cracks in cabinet work.

Repairing and changing wood and metal patterns and core boxes.

Filling dents in automobile bodies.

Covering bolt and rivet heads.

In boat building, in place of wooden plugs to cover countersunk screw heads; for deck inlays; repairing rotten stems, keels and planking; for boat models.

Restoring school desks which have been carved by pupils.

Repairing worn stair treads (Soule, Rec. p. 157–8).

Mr. Silbersack said:

> "Carpenters and painters are quite large users of 'Plastic Wood'. Many carpenters carry it in their kits all the time. Carpenters find it particularly useful because practically all the tools they carry in their kits are tools for taking off wood. 'Plastic Wood' is one of the few items they have for putting wood on—or the only item they have, I should say." (Rec. p. 174.)

Miller, the plaintiff's sales representative in Seattle, testified that "Plastic Wood" enabled cooperage and lumber companies to fill up knot holes in barrels and planks and thus save them from rejection (Rec. pp 188).

This great variety of uses is possible because "Plastic Wood" will stick to any clean surface, and, after hardening, has all the properties of wood. It can be sawn, chiselled, turned and bored like wood; it will not split and holds nails and screws better than natural wood (Soule, Rec. p. 158–9).

The Griffiths composition provided a means for doing many things which had not previously been done, for instance, for altering or repairing pattern-maker's patterns and core boxes, for repairing school desks, for repairing or altering shoe lasts, for repairing dents in automobile fenders and bodies. In some cases the Griffiths composition has supplanted other materials, for instance, putty made of whiting and linseed oil and wood plugs to cover the heads of nails and screws.

The chisel, the knife, the plane, the auger and file all remove wood; Griffiths' composition, "Plastic Wood" gives the carpenter the means of adding on wood.

We submit that the tremendous commercial success of the Griffiths' composition, its immediate acceptance by the public, the innumerable uses to which it is put every day, its universal presence in carpenter's kits and household tool closets, the fact that it has replaced putty and wood inlays in many places, that it performs functions never before performed and its undoubted utility, are convincing evidence that Griffiths made a most important invention.

We submit that these facts, none of which are disputed, are to be taken into consideration on the questions of invention and of the scope which is to be given to the claims.

3. Having Made an Advance Which Has Proved Strikingly Useful, the Patentee is Entitled to Liberal Treatment.

The evidence in this case shows that Griffiths gave to the public a composition which was not available previously; that it was instantly seized upon and filled an important need; and that it has been imitated by the defendant and many others. Whether or not the Griffiths patent is a pioneer need not be discussed. The advance made by Griffiths certainly entitles the patent to liberal treatment. The treatment to be accorded a patent under such circumstances was stated by the Court of Appeals for the Second Circuit (Judge Ward) in *O'Rourke Engineering Construction Co.* v. *McMullen*, 160 F. 933 at 938–9:

> "The principal question in such cases is: Has the patentee added anything of value to the sum of human knowledge, has he made the world's work easier, cheaper, and safer, would the return to the prior art be a retrogression? When the court has answered this question, or these questions, in the affirmative, the effort should be to give the inventor the just reward of the contribution he has made. The effort should increase in proportion as the contribution is valuable. Where the court has to deal with a device which has achieved undisputed success and accomplishes a result never attained before, which is new, useful and in large demand, it is generally safe to conclude that the man who made it is an inventor.
>
> . . . . . .
>
> The keynote of all the decisions is the extent of the benefit conferred upon mankind. Where the court has determined that this benefit is valuable and extensive it will, we think, be difficult to find a well considered case where the patent has been overthrown on the ground of nonpatentability."

The foregoing quotations from *O'Rourke* v. *McMullen* were

adopted by this Court (Judge Sawtelle) in *Butler* v. *Burch Plow Company*, 23 F. (2d) 15 and 24. After adopting Judge Ward's statements quoted above, the Court said (p. 26):

> "The evidence shows that prior to the year 1917 *there was nothing known to the art which would perform the functions of the Burch spreader.* Even if all the elements of the combination had been used before and the functions of each were well known to the art, we think they have never been combined for effectuating the purpose accomplished by the appellee."

The treatment to be accorded to a patent under similar circumstances is well illustrated by that given to the Carson patent by this Court in *Carson* v. *American Smelting and Refining Co.*, 4 F. (2d) 463. That decision contains no short statement suitable for quotation, but we commend the decision as a whole to the attention of the Court.

B. PRIOR LITIGATION, AND PUBLIC ACKNOWLEDGEMENT OF THE GRIFFITHS PATENT.

The prior litigation relating to the Griffiths' invention confirms counsel's belief that Griffiths made an important invention and that the patent is entitled to a scope commensurate with its importance.

Griffiths v. Robertson, Commissioner of Patents. Adequate claims covering Griffiths' invention were refused by the Patent Office, which failed to appreciate Griffiths' invention. Accordingly, suit was brought against the Commissioner of Patents to compel him to grant a proper patent. This suit was brought in the Supreme Court of the District of Columbia under R. S. 4915, now Title 35, U. S. Code, Sec. 63, and was tried before Judge Luhring. The Bill of Complaint, the Answer, the Findings of Fact and Conclusions of Law and the Decree are in evidence in the case at bar, being Plaintiff's Exhibits 51, 52, 53 and 54 (Exh. Bk. pp. 7–22). They show that many of the patents relied on by the defendants in the present case are the same as those which were relied upon by the government in *Griffiths* v. *Robertson*. After trial in open court, Judge Luhring made the following Findings of Fact:

"8. That none of the patents cited by the Patent Office discloses a composition of matter capable of use, without modification amounting to complete reorganization, for the purposes for which 'Plastic Wood' has been used; and that such modifications could not have been made without the exercise of the inventive faculty.

9. That the Griffiths' composition sold under the name of 'Plastic Wood' has achieved a striking commercial success.

10. That Griffiths' composition sold under the name of 'Plastic Wood' has supplanted putty for many commercial and domestic uses and has been used for many purposes for which previously there was no suitable material.

11. That the composition of matter discovered by Griffiths, to wit, a doughy, putty-like plastic comprising nitrocellulose in a solution containing a volatile liquid and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood, was, before November 17, 1923, when Griffiths filed the application here in issue, a new and useful discovery and was not disclosed by any of the prior patents cited by the Patent Office.

12. That other persons, firms, and corporations have since the filing of the Griffiths application, November 17, 1923, placed upon the market imitations of and substitutes for the Griffiths' composition of matter all of which contain the three essential ingredients to wood: nitrocellulose, volatile solvent and cellulose filler.

13. That the plaintiffs are entitled to claims broad enough to prevent the manufacture of compositions of matter containing only the three so-called essential ingredients.

14. That the claims allowed by the Patent Office are limited to five ingredients and therefore do not adequately protect the plaintiff, Griffiths' invention." (Exh. Bk. pp. 20–1.)

The patent was then granted in accordance with the decree of the court.

Boyle v. Sears Roebuck & Co.; Boyle v. Western Auto Supply Co.; Boyle v. Sheffield and Boyle v. Yale Rose et al., doing business as Yale Hardware Co. These were suits for infringement of the Griffiths patent. In *Boyle* v. *Sears Roebuck* (District of Connecticut) a consent decree dismissing the bill without prejudice was entered, but Sears Roebuck "paid us a sum based on the merchandise they had sold" (Silbersack, Rec. p. 176). The Western Auto Supply Co. case (District of Connecticut) was also settled by agreement of counsel and the defendant paid "about $700" (Silbersack, Rec. p. 176). In the Sheffield case (District of Ohio) there was a consent decree ordering an injunction and the payment of $200 as costs (Plff's. Exh. 55; Exh. Bk. p. 44). In the Yale Hardware case (District of Connecticut) an injunction was granted after a trial in open court. (See Plff's. Exh. 56; Exh. Bk. p. 47). There was no written opinion in this case.

These cases show that the several infringers have acknowledged their infringement and made settlements for past damages, except in the case of Yale Hardware Co., which was enjoined after trial. This recognition of the rights of the plaintiff in the Griffiths patent is persuasive of its validity.

Boyle v. Harris-Thomas Company, 18 F. Supp. 177. This was a suit for infringement of the Griffiths patent brought in the District Court of Massachusetts. The case was tried after the present case but was decided on February 8, 1937 before the decision of the District Judge herein and is referred to in his opinion. In *Boyle* v. *Harris-Thomas,* Judge McLellan wrote a careful, elaborate opinion and held claims 5, 6, 8, 11, 13, 15, 16, 17 and 18 valid and infringed. The record in that case covered all the issues raised in the present case, but the defendant cited and relied on a number of prior art patents and publications in addition to those relied on by the defendants herein. After the decision, an appeal was taken but was subsequently dropped by the defendant. Judge McLellan's opinion is referred to hereinafter in connection with the discussion of the prior art. The opinion which is printed in the Appendix to this brief is persuasive of the correctness of appellee's position in the present case.

Many Infringers have Stopped Upon Notification. The Creo-Dipt Co. was granted a license to make the plastic composition covered by the Griffiths patent and the company "paid us a back royalty on the products they sold before they were granted a license" (Silbersack, Rec. p. 173).

The following companies which were manufacturing products believed by the plaintiff to be within the scope of the patent immediately discontinued when the patent was issued and they were notified of the claim of infringement:

Arco Synthetic Wood, made by Arco. Handi Wood, made by Creo-Dipt Co. Dandee Wood Putty, made by Dandee Mfg. Co. Flexwood, made by General Paint Co. Patchwood, made by A. C. Horn Co. Plastic Wood, made by Imperial Laboratories. Patching Wood, made by Janney-Sample Hill Co. Limber Wood, made by Limber Products Co. Dum Dum, made by Miami Rubber Co. Workable Wood, made by T. H. Nevins. Renew Wood, made by Northern Hardware Co. Wood Paste, made by Oakley Paint Manufacturing Co. Patching Wood, made by Tieman Stove & Hardware Co. Tillette Canned Wood, made by Tillette Co. Wood Plastic, made by Tinker Wood Works. Tremco Plastic Lumber, made by Tremco Manufacturing Co. Patching Wood, made by Shapleigh Hardware Co. Fixit Mending Wood, made by Wallace Paint & Varnish Co. (Freeman & Gibson Corporation). Magic Wood, which was sold by Woolworth Company (see Silbersack, Rec. p. 173).

The record shows that upwards of twenty-five companies copied the Griffiths composition and that most of these have subsequently recognized the Griffiths patent. The defendants themselves have also copied Griffiths' composition. **Imitation is often the best evidence of invention.** We respectfully submit that the persistent imitation of the Griffiths composition by the large number of competitors, coupled with the fact that no composition of this kind was on the market prior to the appearance of "Plastic Wood", is almost conclusive proof of the novelty of the Griffiths invention.

Imitation by Others is Persuasive Evidence of Invention.

This proposition is stated in Corpus Juris as follows:

> "The fact that a method or device has been copied or imitated by others after its disclosure is admissible to show that invention was involved in its production." 48 C. J. Patents, Sec. 96.

In *Bankers' Utilities Co., Inc. et al.*, v. *Pacific Nat. Bank et al.*, 18 F. (2d) 16, just quoted above, this Court said:

> "In their position plaintiffs are fortified . . . by the fact that their device is a commercial success *and has brought on imitation.*

In *Brammer* v. *Schroeder*, 106 F. 918, 926, the Circuit Court of Appeals for the Eighth Circuit said:

> "The use of such a sliding cylinder to impart motion to the shaft, in combination with the other parts of this machine designated in the first claim of this patent was new in the art; and the facts that its usefulness is not denied, and that the appellant has seen fit to depart from the many devices open to his use and to adopt that of appellee strongly indicates that it marks a distinct and useful advance in the progress of this art."

See also:

Salt's Textile Mfg. Co. v. *Tingue Mfg. Co.*, 227 Fed. 115 at 117 (District of Connecticut).

Kurtz v. *Belle Hat Lining Co.*, 280 Fed. 277, 281 (C. C. A. 2).

Sandusky v. *Brooklyn Box Toe Co.*, 13 F. (2d) 238, 241, (D. C. E. D. N. Y., Judge Inch).

REPLY TO DEFENDANT-APPELLANT'S ARGUMENTS.

That the Claims Held to be Valid are Anticipated by the Patents to Pierson and Oblasser Exhs. A7 and A10.

Defendants' argument on this point (see Appellant's brief, p. 13) is in effect that since the Pierson and Oblasser patents give certain formulae for the manufacture of plastic compositions and describe the use of the same materials and since the Griffiths composition lies within the two extremes of the ranges of amounts of materials given by the patentees, a person skilled in the art can make the Griffiths composition by following the teaching of either of these two patents.

This argument is fallacious because it assumes that a person skilled in the art would know that by putting together nitrocellolose, volatile solvent and wood flour, he could make putty which on hardening would become essentially a grainless wood. The Griffiths invention lay primarily in his conception that such a material could be made. **Appellant's argument assumes a knowledge of Griffiths' concept.** Given that conception, it is, of course, easy to discover in the prior art ways of making it. To be an anticipation, a prior art patent must not only describe the materials and proportions which will produce Griffiths' composition but also inform the public that a putty can be made from them which on mere exposure to the air will become a grainless wood. No prior patent does this.

The Pierson Patent No. 65,267, May 28, 1867, Exhibit Book, page 71.

This patent is defendants' chief reliance. Defendants' expert Roller said "I think the Pierson patent is the best one" (Rec. p. 247).

The Pierson patent was granted 69 years ago. It describes the manufacture of nitrocellulose and refers to it throughout as "my plastic" (p. 71, column 2, line 6). In the Pierson patent plastic is synonymous with nitrocellulose. Pierson mixes his "plastic" with all sorts of materials to produce four classes of compounds which he

refers to as varieties. Variety 4 includes several sub-varieties of which defendants rely on the sub-variety which is described in the second full paragraph of the first column of page 3 of the patent (Exh. Bk. p. 72). The entire description relied upon by the defendants is as follows:

> "In carbons, &c. take plastic, one part; alcohol four, ether, four; charcoal powder, one to sixteen. Lamp black, or plumbago may be substituted for the charcoal, sawdust, straw, or any vegetable powder or fiber may also be substituted for the charcoal, and oil may often be added to advantage, useful for statuary and moldings, and some forms for paints, and some for marking-pencils, and for other purposes."

This paragraph describes a material made from "plastic" (nitrocellulose), alcohol, ether and charcoal powder and suggests that sawdust or any vegetable powder or fiber may be substituted for the charcoal. The charcoal powder, sawdust or vegetable powder is the filler. As shown by the calculations in appellant's brief, page 16, this paragraph of the Pierson patent describes a material in which the filler varies from 10 to 64% of the whole but the patent gives no proportions to produce any particular compound. In other words, the patent says that a composition may be made by using from 10 to 64% of filler but it does not tell what the composition will be like when any particular percentage is employed. If one part of filler is used, *i. e.*, ten percent, the resulting product is "quite fluid" (Rec. p. 254), while if 16 parts of filler are used, *i. e.*, sixty-four percent, a dry mass is produced (Rec. p. 259).

The exact proportions to be used to produce a particular product or consistency can be discovered only by a series of experiments conducted for the purpose of arriving at a particular result which must be definitely in the mind of the experimenter before beginning his work. The patent contains nothing to suggest to the experimenter the end to be sought.

Consequently, the Pierson patent fails to give any hint of the real invention made by Griffiths, much less a clear, full and accurate description of the Griffiths invention.

Defendants argue that because the patent in suit refers to the plastic composition as being suitable for molding and because the

paragraph from the Pierson patent, on which the defendants rely, states that the mixture is "useful for statuary and *moldings*", they are justified in arguing that the Pierson patent discloses Griffiths' patented invention. This argument overlooks two essential facts, *first*, that the paragraph in question also describes the mixture as being useful "for paints and some for marking-pencils and for other purposes" and fails to point out what proportion of filler is necessary for paint, what for statuary, and what for marking-pencils; and *second*, because the entire argument assumes the knowledge of Griffiths' inventive concept which must form the basis for the determination of the proper proportion of filler to be used.

The Pierson Patent Fails to Disclose Griffiths' Fundamental Concept.

As already stated Griffiths' fundamental concept was of a doughy putty-like material which could be handled like putty and which, on hardening by mere exposure to the air, would become practically a grainless wood. Griffiths pictured such a material and that it could be made from wood flour held together by nitrocellulose. He was the first to conceive the possibility of making a putty which would turn into a grainless wood and of making it from these well-known materials.

Pierson had no such idea. He had in mind many new products such as cotton batting soaked in nitrocellulose, coatings for fabrics, and cordage, paints and lacquers, waterproofing materials, coatings for wood, brick and iron, calcareous compounds, roofing paints, statuary, stucco, adhesive plaster, varnishes for papers, etc. etc. However, in spite of the great number of things of which he thought, he did not think of making a mixture which would produce a grainless wood nor does he give a specific formula which when followed will produce such a material. The patent is totally silent as to Griffiths' invention. It is not possible to find in the Pierson patent an approximation of it, even when the patent is read with the knowledge of the Griffiths invention.

We respectfully submit that the defendants rely on *ex post facto* wisdom when they argue that the Pierson patent contains a disclosure of the invention.

Even if One Starts with Griffiths' Fundamental Concept It Requires Experimentation to Make a Material Comparable to the Griffiths Composition from the Ingredients Mentioned in the Pierson Patent.

This was proved both by defendants' expert, Roller, and by Mr. Webb, President of Webb Products Company. Under direction of Mr. Miller, defendants' counsel, Webb and Roller made a series of specimens which are said to be in accordance with Variety 4c of the Pierson patent, and were intended to reproduce "Plastic Wood" (Roller Rec. pp. 247–8, and Webb Rec. pp. 298–299). Roller said he started *"assuming that I knew what Plastic Wood is"* (Rec. p. 248), that he chose the amounts and proportions "with the intention of getting something which would be a plastic material" (Rec. p. 256) and that he was "trying to produce a putty-like material" (Rec. p. 260). Even starting with this intention, much experimenting was required, as will be pointed out.

It is unnecessary to discuss each of the experiments which Webb and Roller made. They used two kinds of nitrocellulose (Rec. p. 256) and made six combinations with charcoal (Rec. p. 257), six more with sawdust (Rec. p. 257) and other mixtures containing small percentages of rosin, and small percentages of rosin and oil (Rec. p. 258). Roller admitted that he and Webb made at least nineteen or twenty and they appear to have made thirty or forty different mixtures in the course of their experiments with the Pierson patent (Rec. pp. 258–9). They appear to have made many which were not produced. What these were or why they were not produced, we do not know.

That experts like Roller and Webb should think it necessary to make so many examples said to be in accordance with the Pierson patent even when they started with the knowledge of the Griffiths patent and "Plastic Wood" proves that Pierson's directions are not sufficient to enable a mechanic to produce a material comparable to the Griffiths composition without experimentation.

That the description of a prior patent must be sufficiently clear, complete and explicit to enable a mechanic to reproduce the inven-

tion without experimentation, see the cases on the pages of this brief following the discussion of the prior art.

Summary as to the Pierson Patent.

Therefore as to this patent, we submit:

(1) That it fails to teach the possibility of a grainless wood.

(2) That it gives no formula or directions by which such a material can be made.

(3) That even within the range of proportions given by Pierson in the part of the patent relied upon by the appellant, the material of the Pierson patent can be produced by a person skilled in the art only after a series of experiments.

Accordingly we respectfully submit that the Pierson patent failed altogether to teach the public how to make Griffiths' grainless wood and, therefore, does not anticipate the claims of the patent in suit.

Oblasser British Patent No. 19,242 of 1892 (Exh. Bk. page 79).

The Oblasser patent likewise fails to disclose either Griffiths' fundamental concept of a doughy putty-like mass composed of nitrocellulose, volatile solvent and cellulose filler (wood flour) which on exposure to the air will dry to substantially the solidity and rigidity of wood, but also it fails to give any instructions or description which would inevitably result in the production of such a product. *The patent gives no proportions whatever.* The patent describes, first, a coating like a paint, and then suggests that this coating can be mixed with certain substances to produce "an agglomerate". The deficiencies of the Oblasser patent as an anticipation of the Griffiths invention are best pointed out by plaintiff's expert, Dr. Esselen, as follows:

> "Now, the second feature of that Oblasser patent is an agglomerate, which is made by mixing this coating liquid with a filler. The purpose of the agglomerate as described in the patent, is to make battery boxes directly from this by moulding.
>
> Now, if you are going to make an article like a battery box which is open only on one end or one side, it is obvious that

you cannot use a mixture for that purpose which has an appreciable amount of volatile solvent left in it. When it refers to making battery boxes by moulding, it must necessarily refer to the mechanical operation of moulding under pressure, probably also with the aid of heat, because if one were to rely on shaping the box first and then allowing it to set up by the evaporation of the volatile solvent, there would necessarily be warpage during the drying, for the simple reason that the volatile solvent would dry out much more freely from the outside of the box than it would in the inside space, in the inside of the box, and that would necessarily result in warping. Therefore, what is described here must be a very stiff mixture which is moulded by mechanical processes under heat and pressure.

The third feature of the Oblasser patent is simply a cover for battery boxes, which cover is made, essentially, of a piece of transparent celluloid." (Esselen, Rec. p. 310.)

The Oblasser patent, therefore, fails as an anticipation of the claims in the patent in suit. *First*, because Oblasser did not have Griffiths' fundamental conception of a grainless wood, and *second*, because he did not describe ingredients and proportions which would produce such a material.

A Long Time Has Elapsed Since the Pierson and Oblasser Patents Were Granted.

The Pierson patent was granted in 1867, seventy-one years ago and the Oblasser patent was granted in 1892, forty-six years ago. Nevertheless, during the period which elapsed between the dates of these patents and the date of Griffiths' invention the world went without "Plastic Wood". Carpenters continued to use lead putty, to put in wood-inlays and to use roundabout methods of repair which have been largely done away with by Griffiths' invention. If Pierson's and Oblasser's patents had taught the world what defendants' counsel say they do, the world would not have waited fifty years for "Plastic Wood". We respectfully submit that the lapse of time since the Pierson and Oblasser patents were granted is the strongest possible proof that they do not disclose Griffiths' invention.

REPLY TO DEFENDANTS' THIRD POINT, NAMELY, THAT THE CLAIMS OF THE GRIFFITHS PATENT FAIL TO DEFINE ANY INVENTION OVER THE STATE OF THE ART.

Defendants' argument on this point is, in effect, that the patent to Pierson, Exh. Bk., page 71, discloses a wide range of proportions from which Griffiths merely made a specific selection within the range and that this did not amount to invention in view of certain other prior art patents. All but two of these patents were fully considered by the Patent Office and by the Supreme Court of the District of Columbia in *Griffiths* v. *Robertson, Commissioner of Patents, supra.* These prior art patents are:

The Merrick patent No. 1,203,229 (Exh. Bk. p. 73). The Merrick patent describes a filler for shoe bottoms, comprising a mixture of pyroxylin in solution, and "ground cork, and asbestos fiber or other fibrous material". (See p. 1, lines 50–54.) *No proportions of the ingredients are given.* The teaching of the patent is summed up in the claim as follows:

> "The improved plastic adhesive composition of matter for use as a filler for shoe bottoms comprising an admixture of pyroxylin in solution, cork in a finely divided state, and subdivided fibrous material."

The purpose of a shoe filler is to fill up the space in a welt shoe between the insole and the outsole, this space being about the thickness of the welt. Since the shoe must bend freely in walking, the filler must have the same flexibility as the leather outsole. If it were stiff, the shoe would be useless. The material must also remain flexible throughout the life of the shoe, and must not shift in the shoe nor be squeezed from one position to another nor form bunches or lumps under the wearer's foot. (See the specification, line 170 and following.) To prevent bunching of the filler, Merrick includes fibrous material as well as ground cork. (See specification, lines 52–54, and the claim.) The fibrous material is necessary to keep "the layer of composition from altering its position under the pressure of the weight of the wearer of the shoe" (lines 69–73).

Merrick, therefore, describes a material which is not in the least wood-like since it is freely flexible like leather and must contain fibrous material so that it will not shift its position in the shoe. This is altogether different from Griffiths' rigid solid grainless wood.

Defendants' witness, Webb, made up a specimen (Defendants' Exh. A-54) which he says is made in accordance with the Merrick patent.

However, he did not follow the teaching of the Merrick patent, because he used ground asbestos which is a powder instead of asbestos fiber which the patent calls for. He used no fibrous material such as "leather, paper pulp and the like". Furthermore, Webb's specimen (Exh. A-54) is as hard and rigid as a piece of wood and is not flexible as called for by the Merrick patent. It is evident that Webb deliberately set out to make the Griffiths composition, not Merrick's; that he chose ingredients and proportions to suit his own purposes, and did not follow the teaching of the Merrick patent. Plaintiff's expert, Esselen, pointed out that the Merrick patent calls for a material which is permanently flexible and soft to the foot, rather than one which is hard, unyielding and rigid. (See Rec. pp. 308–9.)

The Merrick patent was fully considered by the Supreme Court of the District of Columbia in *Griffiths* v. *Robertson.* Judge Luhring found:

> "Paragraph 4. That the patent to Merrick No. 1,203,229, Oct. 31, 1916 (Exh. D), described a filler for shoe bottoms which is when dried a soft pliable, rubbery, flexible, fibrous material and does not on mere exposure to the air harden to substantially the rigidity and solidity of wood." (Exh. Bk. p. 19.)

To sum up as to the Merrick patent, it teaches nothing comparable to Griffiths' plastic composition.

Black No. 1,294,355 (Exh. Bk. p. 91), describes a material for use as a dental filling. It contains such materials as nitrocellulose, silica, gum amber, acetone and chloroform. It contains no vegetable filler such as wood flour. A tooth filling is necessarily a hard bone-like substance entirely different from Griffiths' grainless wood.

The Black patent is too remote to have contributed anything which would have enabled the public to make Griffiths' plastic composition.

As to this patent, Judge Luhring said:

> "5. That the patent to Black 1,294,355, February 11, 1919 (Exhibit E) described a dental filling bearing no resemblance to the composition of matter sought to be covered by the claims prayed for in the Bill of Complaint." (Exh. Bk. p. 19.)

Eckstein No. 458,157, August 25, 1891 (Exh. Bk. p. 93). The Eckstein patent discloses a solution of collodion, castor oil, resin, gum and pigment, such as zinc white. The material is intended for collars, cuffs and shirt bosoms. *At best this is merely a white celluloid.* The patent does not describe or suggest the Griffiths composition. This patent was cited by the Examiner in the first Office action (see file wrapper Griffiths patent, Defendants' Exh. A-5, paper No. 2, letter of July 11, 1924), but was never referred to again. The Eckstein patent is dated August 25, 1891. Consequently, for twenty-five years it failed to teach the public how to make the Griffiths composition!

Hyatt & Blake No. 89,582, May 4, 1869 (Exh. Bk. p. 115). This patent describes mixing a solution of gun cotton, alcohol and ether with ivory dust and then molding it under heat and pressure, the pressure being about 10,000 pounds to the square inch. Hyatt & Blake's composition is a hot molding composition intended to produce artificial ivory. This patent does not suggest Griffiths' doughy putty-like mass which turns to grainless wood on mere exposure to the air. Defendants argue that because Hyatt & Blake used an animal powder (ivory dust) and Griffiths in his laboratory notes disclosed the use of leather chips, there is a similarity between the two compositions. The argument is worthless because the Griffiths patent as filed covered only a grainless wood, while the Hyatt & Blake patent teaches only how to make nothing but a hard, dense, hot molding substance like artificial ivory. What Griffiths may have had in his mind when he made his invention is now of no importance. We also call attention to the fact that the Hyatt & Blake patent was granted more than fifty years before Griffiths

made his invention. The patent was not referred to or relied on at the trial of this case. Defendants' present argument is an afterthought.

As to the Hyatt & Blake patent, Judge Luhring in Griffiths-Robertson, said:

> "2. That the patent to Hyatt & Blake No. 89582, May 4, 1869, (Exhibit A) described a molding compound which requires heat and heavy pressure to solidify it and is not, before molding, a doughy-plastic mass capable of being handled and used like putty nor of drying by mere exposure to the air to substantially the rigidity and solidity of wood." (Exh. Bk. p. 19.)

*Bulling and Rees, British Patent No. 169,177** (Exh. Bk. p. 130). This patent merely describes the manufacture of a sealing wax based on a solution of celluloid to which calcium chloride, plaster of paris, and coloring matter are added. The patent is too remote to require any discussion. See also Judge Luhring's Finding of Facts as follows:

> "7. That the British patent to Bulling and Rees No. 169,-177, accepted December 18, 1922 (Exhibit H) is for an improvement in sealing wax substitutes; that it contains mineral fillers and no cellulose filler; that the final compound being hydroscopic, is totally unsuitable for any uses of a wood base putty; that said material is stonelike and has none of the characteristics of wood." (Exh. Bk. p. 20.)

Parks, British Patent 1614 of 1868 (Exh. Bk. p. 139). This patent merely shows that it was old to make articles like billiard balls by moulding them from a mixture of pyroxylin, starch, ground cork, etc. etc.

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* This patent was not relied on at the trial. It was not "complete accepted" until Dec. 18, 1922 and not printed until 1923, which dates are less than two years before the date of application, Nov. 17, 1923, of the patent in suit, and therefore cannot be relied on as proof of anticipation.

CITATION OF CASES RELATING TO THE PRIOR ART.

1. Prior Art Patents or Publications to be Effective as Anticipations of a Patent Must Disclose the Invention in Such Full, Clear and Exact Terms as Will Enable a Person Skilled in the Art to Employ It.

The prior art which the defendants have introduced in this case fails to disclose (1) Griffiths' concept of a grainless wood produced from a putty-like material merely by drying, and (2) any exact composition of ingredients which would produce such a result. It is only by inference and argument, by piecing together parts of patents, and particularly by assuming knowledge of Griffiths' fundamental concept, that defendants can approach finding an anticipation in the group of old patents upon which they rely. No patent has been cited which gives Griffiths' concept, nor the ingredients and proportions which would produce Griffiths' plastic composition. No patent describes the invention, much less, describes it in such full, clear and exact terms as would enable a person skilled in the art to practice it without resort to experimentation.

In *Carson* v. *American Smelting & Refining Co.*, 4 F. (2d) 463–5, this Court said:

> "A foreign patent is to be measured as anticipatory, not by what might have been made out of it, but by what is clearly and definitely expressed in it. An American patent is not anticipated by a prior foreign patent, unless the latter exhibits the invention in such full, clear and exact terms as to enable any person skilled in the art to practice it without the necessity of making experiments."

Although the Court was speaking of a foreign patent which it held to be deficient as an anticipation its statement applies with equal force to United States patents.

In *Seymour* v. *Osborne*, 78 U. S. 516–555, the Supreme Court of the United States (Mr. Justice Clifford) said:

> "Patented inventions cannot be superseded by the mere introduction of a foreign publication of the kind, though of

prior date, unless the description and drawings contain and exhibit a substantial representation of the patented improvement, in such full, clear and exact terms as to enable any person skilled in the art or science to which it appertains, to make, construct, and practice the invention to the same practical extent as they would be enabled to do if the information was derived from a prior patent. *Mere vague and general representations will not support such a defence, as the knowledge supposed to be derived from the publication must be sufficient to enable those skilled in the art or science to understand the nature and operation of the invention, and to carry it into practical use.* Whatever may be the particular circumstances under which the publication takes place, the account published, to be of any effect to support such a defence, must be an account of a complete and operative invention capable of being put into practical operation."

See also :

Young Radiator Co. v. *Modine Mfg. Co.*, 55 F. (2d) 545 547 (C. C. A. 7th).

Cohn v. *United States Corset Co.*, 93 U. S. 367–379.

Trussell Mfg. Co. v. *Wilson-Jones Co.* (C. C. A. 2, 1931), 50 F. (2d) 1027, 1030.

2. A Prior Publication is Not Sufficient As An Anticipation if Experimentation is Required to Make the Invention Available For Use.

This proposition is a corollary of the previous proposition that a prior art patent must disclose the invention in such full, clear and exact terms as will enable a person skilled in the art to employ it. In the cases on this subject the above statement is often coupled with the statement "without the necessity of making experiments". See *Carson* v. *American Smelting & Refining Co., supra.*

In *J. A. Mohr & Son* v. *Alliance Securities Co.*, 14 F. (2d) 799, C. C. A. 9, Gilbert, Circuit Judge, said (p. 800) :

"It is to be borne in mind that the prior art here relied upon consists entirely of patents, and that when it is sought by

means of prior patents to ascertain the state of the art, 'nothing can be used except what is disclosed on the face of those patents. *They cannot be reconstructed in the light of the invention in suit, and then used as a part of the prior art'. Naylor* v. *Alsop Process Co.*, 168 F. 911, 94 C. C. A. 315; *Frey* v. *Marvel Auto Supply Co.*, 236 F. 918, 160, C. C. A. 178."

In *Hoskins Mfg. Co.* v. *General Electric Co.*, 212 Fed. 422 (D. C. N. D. Ill., Judge Sanborn), the Court said (p. 429):

"The Prior Art. Legal rules on the question of anticipation are that 'anticipating patents and publications must disclose the invention without patentable change or alteration to make them anticipatory'. *Goodwin Film & Camera Co.* v. *Eastman Kodak Co.* (Aug. 14, 1913; W. D. N. Y.) 207 Fed. 351, citing *Waterbury Buckle Co.* v. *Aston*, 183 Fed. 120, 105 C. C. A. 410. As plaintiff's counsel expresses it, the reference—

'must be so clear and definite to enable any mechanic skilled in the art to reach the patented invention certainly, directly, *and without the necessity of any experiment*, and this rule is enforced with peculiar strictness when the alleged disclosure is found in a foreign patent or publication'.

Badische Anilin & Soda Fabrik v. *Kalle*, 104 Fed. 802, 44 C. S. A. 201; *Hogan* v. *Specialty Co.*, (C. C.) 163 Fed. 289; Hopkins on Patents, 261; Macomber's Fixed Law of Patents (2d. Ed.) Sec. 85."

This case was affirmed by the Circuit Court of Appeals for the Seventh Circuit in 224 Fed. 464. In their decision the Circuit Court of Appeals made the following statement which is directly applicable to the case at bar (p. 471):

"It was an inventive act on Marsh's part to extricate this most valuable material from the vague generalities and speculative statements of Placet, and place it among the instrumentalities of science as an electrical resistance element."

Earlier in the opinion the Court also said (p. 470):

"For 11 years this device of Marsh lay hidden as a gem in its

> Placet matrix. There it might yet be lying had not Marsh found it and made it public. Certainly it never occurred to Placet that this chromium-nickel alloy would produce a rival to platinum as a resistance element at a cost and under conditions which made it an available article of commerce."

Goodwin Film & Camera Co. v. *Eastman Kodak Co.*, 207 Fed. 351, is also interesting because in that case the Court hesitated to consider tests, such as those made by Webb and Roller in the present case, on the ground that the anticipating patent must speak for itself and that such tests and experiments went outside the disclosure of the anticipating patent. The Court said (p. 360):

> "The rule is that anticipating patents and publications must disclose the invention without patentable change or alteration to make them anticipatory. *Waterbury Buckle Co.* v. *Aston*, 183 Fed. 120, 105 C. C. A. 410. If the anticipatory matter relied upon was capable of producing a satisfactory support for the film, the evidence relating thereto is not sufficiently persuasive of the fact. In the light of the invention in suit and subsequent developments in the film-making art, *it is not improbable that the earlier processes might now be quite easily altered to attain the Goodwin result, and because of such probability this court is reluctant to give weight to the test films made by Prof. Main* since this action was brought in support of the assertion that the prior art described a process for successfully making films of the Goodwin type."

3. The Fact that a Long Time Has Elapsed Since the Prior Art Patent is Often Conclusive Evidence that the Prior Art Patent Did Not Disclose the Invention.

As has already been pointed out, defendants in this case rely for anticipation chiefly on patents which were taken out from twenty to fifty years before Griffiths made his invention. This fact establishes that these patents did not disclose the invention and, therefore, that the public had no prior knowledge of Griffiths' composition.

In *Kings County Raisin & Fruit Co.* v. *United States Consolidated Seeded Raisin Co.*, 182 F. 59–62, Oct. 3, 1910, this Court (Judge Gilbert) referring to a prior art patent said:

> "A third of a century passed between the date of that patent and the date of the Pettit patent, and in that time the evidence is conclusive that raisin seeding was done by hand, and that seeding by machinery was an unknown art."

In *Young Radiator Company* v. *Modine Mfg. Co.*, 55 F. (2d) 545, C. C. A. 7, Dec. 28, 1931, the Circuit Court of Appeals for the Seventh Circuit said:

> "Whatever may be said of the simplicity of appellee's device and the readiness with which a mechanic might anticipate such use of the old elements involved, the fact remains that for more than half a century no mechanic, so far as the record shows, had ever suggested such use. We are convinced therefore that the patent is valid."

In *Wellman-Seaver-Morgan Co.* v. *William Cramp & Sons Ship & Engine Bldg. Co.*, 3 F. (2d) 531, 532, January 15, 1925, the Circuit Court of Appeals for the Sixth Circuit (Judges Denison, Mack and Donahue) said:

> "If earlier patents show a close analogy with differences which, according to our present light, hardly seem material, and yet it appears that such a patent, or a succession of them, never found any commercial favor, this fact has evidential force to indicate that the differences are more important than they seem, and that the relatively slight later changes and adaptation to a different demand have a valid claim to inventive character."

In *American Stainless Steel Co.* v. *Ludlam Steel Co.*, 290 Fed. 103 at 105–6, April 16, 1923, the Circuit Court of Appeals for the Second Circuit, Judge Hough, made the following statement, which is strikingly apposite to the case at bar:

> "This record is replete with accounts of speculations on this subject and dissertations thereon by men confessedly skillful

> in their day in the arts of steel making and metallurgy. These publications have been advanced by defendant to minimize the inventive concept of Haynes and Brearley. To us they magnify it. There are many inventions which seem to have been gathered, as it were, from the scrap heaps of human effort. They appear to observers as the results of accident, rather than intelligent design. But where men, doubtless well equipped for a particular sort of work, have hoped and investigated and even prophesied as to what could be done, but never did it, and other men similarly equipped have by intensive study and skillful experiment succeeded, such success commands and should receive a greater meed of intellectual appreciation than is accorded even to the cleverness of picking up and utilizing an unconsidered or discarded trifle. When to the scientific triumph of succeeding where other scientists have failed is added the development of a new branch of industry, the word 'pioneer' may well be accorded to the patent which describes and defines, even though lamely, the essentials of such success."

See, also, *Carson* v. *American Smelting & Refining Co.*, 4 F. (2d) 463, 465, and the discussion of the prior Siemens patent.

In the case at bar defendants' counsel have cited a number of publications and patents "to minimize the inventive concept" of Griffiths. *"To us they magnify it."* They bring into sharp relief the fact that none of these prior writers and patentees, brilliant though they were, and valuable as are the contributions which some of them have made, had the remotest conception of a grainless artificial wood.

Nothing which they did would ever have given to the carpenter his new tool.

4. The Defendants Rely on Ex Post Facto Wisdom to Build up an Anticipation.

From the several prior art patents referred to in detail above, defendants in their brief (p. 32) argue that it was customary to mix a finely divided filler into a solution of nitrocellulose and that "the nature of the resulting product desired determines what filler to

use". This argument is based on the fallacy which permeates defendants' brief throughout, viz.,—that any one who wanted to make the Griffiths composition could have found out how to do so by examining the patents cited, thus assuming a knowledge of Griffiths' concept which did not exist prior to the date of Griffiths' invention. Defendants' witness Roller fell into the same mistake when he said: ". . . *assuming that I knew what Plastic Wood is,* . . . I would proceed to make up my mixture as he directs in there." (Rec. p. 284.) The defendants therefore rely on *ex post facto* wisdom to build up an anticipation. This is the very error which the Supreme Court of the United States has frequently condemned. In *Diamond Rubber Co.* v. *Consolidated Rubber Tire Co.*, 220 U. S. 428, the Supreme Court of the United States (Mr. Justice McKenna) said (pp. 434–5):

> "Knowledge after the event is always easy and problems once solved present no difficulties, indeed, may be represented as never having had any, and expert witnesses brought forward to show that the new thing which seemed to have eluded the search of the world was always ready at hand and easy to be seen by a merely skillful attention. But the law has other tests of the invention than subtle conjectures of what might have been seen and yet was not."

In *General Electric Co.* v. *P. R. Mallory Company*, 294 F. 562, 564, Judge Mayer of the Second Circuit said:

> **"The defenses in the case at bar might be called synthetic defenses. Once an invention is disclosed to the world, skilled men can show how, if somebody previously had done this or that, the inventive result would have happened, and the device of the patent could have been built up. But the answer usually is that the prior art shows that the skilled men did not conquer the 'ifs'."**

In *Proctor & Gamble Co.* v. *Berlin Mills Co.*, 256 F. 23 at 26, C. C. A. 2, Hough, C. J., said:

> "When novelty in that sense appears **the question really is one of measuring foresight by hindsight.** The problem

seems easy now, but when the object reached was desirable, useful, and apt for commercial success, the bald fact that nobody ever did it before is persuasive, though not conclusive, evidence of some invention. Burchenal's imitation lard has these attributes, and we consider it a sufficient answer, to the statement that any oil chemist could have done the thing, to note that no oil chemist did do it during the more than score of years prior to Burchenal's application when cotton seed oil (especially) as an abundant American product was endeavoring to supplant lard in the American market."

See also:

General Electric Co. v. *Alexander*, 277 Fed. 290, 300 (So. Dist. of N. Y.).

Root Refining Co. v. *Universal Oil Products Co.*, 78 F. (2d) 991, 995 (C. C. A. 3).

Gulf Smokeless Coal Co. v. *Sutton, Steele & Steele*, 35 F. (2d) 433, 436 (C. C. A. 4).

Expanded Metal Co. v. *Bradford*, 214 U. S. 366, 381 (C. C. A. 3).

Gottschalk Mfg. Co. v. *Springfield Wire & Tinsel Co.*, 74 F. (2d) 583, 586 (C. C. A. 1).

Westinghouse Elec. & Mfg. Co. v. *Wadsworth Elec. & Mfg. Co.*, 36 Fed. (2d) 319, 321 (C. C. A. 6).

REPLY TO DEFENDANTS' ARGUMENT THAT CLAIMS 5, 8, 13, 16 AND 17 ARE TOO BROAD, VAGUE, FUNCTIONAL AND INDEFINITE TO BE VALID.

Defendant argues (Brief, pp. 7–13) that claims 5, 8, 13, 16 and 17 are too broad, vague, functional and indefinite to be valid and bases this argument on the assertion that the patent contains no definition of "doughy or putty-like" and does not state the proportions of the composition requisite to enable it to "harden upon mere exposure to air to substantially the rigidity and solidity of wood".

The statutory provision requiring that the claims of a patent

must be definite has for its sole purpose to inform the public of the limits of the monopoly granted by the patent. If the claims of a patent inform the public of these limits, the reason for the rule is fully satisfied and the claims are not subject to criticism on this ground. In the case at bar, the claims mark out the boundaries of the patentee's monopoly with all the definiteness which even the most meticulous can require.

The Griffiths patent in suit contains five formulae, one of which gives the general limits which are recommended, another of which gives the preferred form which is practically identical with the material now put on the market by the plaintiff under the name "Plastic Wood", while the other three formulae are alternative compositions. The patentee describes exactly each material which enters into his composition. The claims in question specify the three essential materials (nitrocellulose, volatile solvent and finely divided cellulose filler), the condition of the mixture before using, and the condition after hardening, and, further, that the hardening results from mere exposure to air. A person who reads the specification and then reads the claims knows exactly what the patent covers. Not only can he make the Griffiths composition without further information but he can tell whether a given composition which he has made is within the terms of these claims.

Furthermore the phrases "doughy, putty-like" and "having the rigidity and solidity of wood" are not, as defendants assume, functional phrases. They describe definite physical characteristics of the composition both before and after hardening. They are as definite as if the patent had said that the mixture must have a certain viscosity before and a certain specific gravity after hardening. Had phrases like "viscosity" or "specific gravity" been used, the claims would not have been criticized as functional or indefinite. Homely terms understood by everyone may define an invention just as accurately as scientific terms.

The Decision in General Electric Company v. Wabash Appliance Company, 37 USPQ 466. 304 U. S. 364; 82 L. Ed. 912.

Defendants rely upon the recent decision of the Supreme Court to support their position that the claims of the Griffiths patent are indefinite and functional. Even though, as already pointed out, it is apparent that the claims of the patent in suit are definite and are not functional, a word as to the limits of the decision of the Supreme Court in *General Electric* v. *Wabash* may be desirable.

In the General Electric case the patented tungsten filament was described only as composed of "large grains of such size and contour as to prevent substantial sagging and offsetting". Previous filaments had also been composed of large regular grains. Neither the specification nor the claims contained any description of any variation in structure or quality of the large grains which prevented sagging or offsetting. The public, therefore, was left wholly in the dark as to how to make a filament composed of large grains which would not sag or offset, and, therefore, as to the precise limits of the claims. Pacz attemped to claim any and all large grain structures which prevented two known defects, without claiming or even disclosing any way in which the result could be accomplished.

In the General Electric case, the functional statement that the large grains would not offset or sag was the only thing which distinguished Pacz's improvement from the prior art.

But even under these conditions the Supreme Court said:

> "A limited use of terms of effect or result, which accurately define the essential qualities of a product to one skilled in the art, may in some instances be permissible and even desirable, but a characteristic essential to novelty may not be distinguished from the old art solely by its tendency to remedy the problems in the art met by the patent. And we may doubt whether the language used in Claim 25, taken by itself, conveyed definite meaning to those skilled in the art of incandescent lighting." (Page 469.)

In the present case

(1) As already pointed out, the term "doughy and putty-like" and the phrase "to harden upon mere exposure to the air to substantially the solidity and rigidity of wood" are as simple and understandable as can well be conceived. Any person, whether skilled in the art or not, will understand instantly what is meant by these terms. Technical terms or verbose explanations could not describe the condition of the plastic before and after hardening more accurately.

(2) Griffiths specification sets forth the specific proportions of the ingredients required in exact formulae. This was not true of Pacz. Thus Mr. Justice Reed said:

> "Assuming that in a proper case a claim may be upheld by reference to the descriptive part of the specification in order to give definite content to elements stated in the claim in broad or functional terms, *the specification of the Pacz patent does not attempt in any way to describe the filament, except by mention of its coarse-grained quality.* Even assuming that definiteness may be imparted to the product claim by that part of the specification which purportedly details only a method of making the product, *the description of the Pacz process is likewise silent as to the nature of the filament product.*"

(3) The statement of proportion is not the "characteristic essential to novelty", but incidental to that characteristic. Here Griffiths specifies the actual ingredients, nitrocellulose, solvent and wood filler and that the mixture of these ingredients shall have the properties of being doughy or putty-like before exposure to air, and of hardening into a grainless wood after exposure to air. This whole combination of ingredients and characteristics was novel. Therefore, the rule of the General Electric case, that where an improvement over the prior art differs from the prior art only by the inclusion of one novel element the claims must define that element in terms of its structure, rather than its purpose, does not apply.

(4) The Griffiths invention is not a narrow improvement over the prior art; the claims do not define the "novel characteristic" by its "tendency to remedy the problems in the art".

(5) A patent is addressed to the man skilled in the art. The man skilled in the art can tell from the Griffiths' claims what proportions of nitrocellulose, solvent and filler are needed to give the doughy, putty-like characteristics to the composition, and which will harden into the solidity of wood upon mere exposure to the air.

It must be obvious also that the requirement for defining an invention does not require a statement of exact percentages as defendants argue. Once an inventor of a new composition has shown in his disclosure how his new composition can be made, it will at once become clear to others familiar with the art that many different proportions can be used, with varying and useful results in the final product. The patentee is entitled to claims which, while defining the invention accurately, will protect it adequately. The rule for which defendants argue would limit the patentee to something less than his invention and permit imitators to profit by the patentee's discovery, and shield himself behind a purposeless rule of interpretation.

It is respectfully urged that the rule of *General Electric Co.* v. *Wabash Corp.* does not apply and that the limitation in claims 5, 8, 13, 16 and 17 state the patentee's invention in terms easily understood and mark out the boundaries of plaintiff's monopoly unmistakably.

We respectfully submit that the situation in the case at bar is more like that in the *Eibel Process case* and *Tilghman* v. *Proctor* than in *General Electric* v. *Wabash Corp.* It is obvious that the Supreme Court did not intend to overrule either the *Eibel case* or *Tilghman* v. *Proctor* both of which present entirely different states of fact.

In *Eibel Process Company* v. *Minnesota & Ontario Paper Co.*, 261 U. S. 45, claim 1 sustained read as follows (p. 50) :

> "1. A Fourdrinier machine having the breast-roll end of the paper-making wire maintained *at a substantial elevation above the level*, whereby the stock is caused to travel by gravity, *rapidly*, in the direction of movement of the wire, and *at a speed approximately equal to the speed of the wire*, substantially as described."

Mr. Chief Justice Taft said (pp. 65–66) :

"The next objection of the patent which prevailed in the Circuit Court of Appeals is that its terms are too vague because the extent of the factor of pitch is not defined except by the terms 'substantial' and 'high'. The figure accompanying the specification and illustrating the improvement indicates an angle of four per cent. or an elevation of 12 inches, and the reference to the small elevations for drainage shown in earlier devices indicates that the patentee had in mind elevations substantial as compared with them in order to achieve his purpose of substantially increasing the speed of the stock. *It was difficult for him to be more definite, due to the varying conditions of speed and stock existing in the operations of Fourdrinier machines and the necessary variation in the pitch to be used to accomplish the purpose of his invention.* Indefiniteness is objectionable because the patent does not disclose to the public how the discovery, if there is one, can be made useful and how its infringement may be avoided. We do not think any such consequences are involved here. This patent and its specifications were manifested to readers who were skilled in the art of paper making and versed in the use of the Fourdrinier machine. The evidence discloses that one, so skilled, had no difficulty, when his attention was called to their importance, in fixing the place of the disturbance and ripples to be removed, or in determining what was the substantial pitch needed to equalize the speeds of the stock and wire at that place. The immediate and successful use of the pitch for this purpose by the owners of the then fastest machines and by the whole trade is convincing proof that one versed in paper making could find in Eibel's specifications all he needed to know, to avail himself of the invention, Expressions quite as indefinite as 'high' and 'substantial' in describing an invention or discovery in patent specifications and claims have been recognized by this Court as sufficient. In *Tilghman* v. *Proctor*, 102 U. S. 707, the claim sustained was for "the manufacturing of fat acids and glycerine from fatty bodies by the action of water at a *high temperature* and pressure'. See also *Rubber*

Co. v. *Goodyear,* 9 Wall. 788, 794; *Mowry* v. *Whitney,* 14 Wall. 620, 629; *Lawther* v. *Hamilton,* 124 U. S. 1, 9; *Carnegie Steel Co.* v. *Cambria Iron Co.,* 185 U. S. 403, 436; *Abercrombie & Fitch Co.* v. *Baldwin,* 245 U. S. 198, 205."

REPLY TO DEFENDANTS' ARGUMENT THAT THERE IS NO INFRINGEMENT OF THE GRIFFITHS CLAIMS.

Defendants' argument found on pages 36–7 of its brief is in substance that as the defendants' composition contains only 11.5% of wood filler, whereas the Griffiths composition as described in the specification contains from 15 to 30%, and since, so defendants say, the Pierson patent anticipates the claims if read broadly, the claims must be limited to not less than 15% of wood filler.

The argument is unsound for the following reasons:

1. Because defendants conceal the fact that in addition to the 11.5% of wood flour its product contains 6.26% gypsum on the basis of volume, bringing the total filler to 17.8%. Gypsum is an equivalent for the wood flour. In fact, therefore, defendants are using 17.8% of filler and not 11.5% and this amount is more than the amount (15%) to which defendants would limit the claims by interpretation.

2. Because there is nothing in the Pierson patent which requires any such limitation of the claims of the patent in suit. As already pointed out Pierson specified the range as from 10 to 64% of filler but he did not tell the public what percent of filler must be used to produce a doughy putty-like material which on hardening will become a grainless wood. Griffiths' invention consisted in the discovery that he could produce a grainless wood by using proportions of materials which happened to be within Pierson's range. The dividing line between Pierson's composition and Griffiths' composition is definitely set by the two phrases "doughy, putty-like" and "in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood".

3. Because the claims are limited as suggested, they will be substantially the same as other claims already in the patent. It is well established that the Court will not limit broad claims of a patent so that they will coincide in scope with narrower claims.

CONCLUSION.

In conclusion we respectfully submit:

That Griffiths made a most meritorious invention which has given to the public a new and extremely useful tool.

That the invention was novel and almost pioneer in character.

That the defendants have availed themselves of the knowledge which Griffiths gave to the world.

That such prior art patents as Pierson's which are silent on the possibility of making an artificial grainless wood do not anticipate Griffiths' invention, and

That the patent is full and explicit and the claims define the invention clearly and accurately.

We further submit that defendants' arguments are based on knowledge after the event—the *ex post facto* wisdom which the courts often condemned, and that the decree of the District Court should be affirmed.

Respectfully submitted,

GEORGE P. DIKE,
CEDRIC W. PORTER,
DIKE, CALVER & GRAY,
for the Appellee.

G. WRIGHT ARNOLD,
Seattle, Washington,
Solicitor for Appellee.

Boston, Mass., October 31, 1938.

APPENDIX.

DISTRICT COURT OF THE UNITED STATES
DISTRICT OF MASSACHUSETTS

EQUITY No. 4091

THE A. S. BOYLE COMPANY

v.

HARRIS-THOMAS COMPANY ET AL

OPINION.

February 8, 1937.

MCLELLAN, J. This is a suit for infringement of the patent under which the plaintiff's preparation known as plastic wood is made and sold in the United States,—Patent No. 1,838,618, issued to Manfred Ethelwold Griffiths on December 29, 1931, upon an application filed November 17, 1923. Proceedings in the Patent Office and in the Supreme Court of the District of Columbia occupied the years between the date of the application and the date of the issue.

Statements of fact and conclusions appearing herein may be taken as findings of fact and conclusions of law in accordance with the equity rules.

The defendants are Harris-Thomas Company and Low Supply Company. The plaintiff's brief makes no reference to the Low Supply Company, no evidence was introduced against it, and no claim was asserted at the trial against it, and as to this defendant the bill should be dismissed. Hereafter in this opinion when the defendant is referred to it will be understood that the Harris-Thomas Company alone is meant.

The defences are invalidity and non-infringement. The defendant offered no testimony on either issue, but in support of its allegations as to invalidity presented, as evidence of the prior art, a great number of patents and some excerpts from textbooks and other publications.

The nature of the invention is thus stated in the specification:

> "This invention relates to plastic compositions and has for its object to provide a plastic mass which may be used for many

purposes, for example, for filling, coating or moulding, having properties not found in the usual filling and like compositions.

"The invention in brief consists in a plastic composition comprising a solution of nitro-cellulose, a resinous body and a non-drying oil in a ketonic liquor, to which solution a filler is added * * *

"The mixture is treated in a kneading machine until it is of uniform consistency. It may then be employed for a number of purposes; for example, it may be used by pattern makers for filleting and similar work, by joiners and cabinet makers for filling screw and nail holes, shakes in timber, openings at joints and for preparing or repairing mouldings and carvings, or by shoemakers for building up or repairing lasts.

"A plastic composition prepared as described above hardens quickly when exposed to the air, adheres firmly to any clean dry foundation, does not blister or powder when exposed to moderate heat and is not affected by water, gasoline or other available liquids."

Ingredients suggested in the specification are celluloid scrap, castor oil, and ester gum, dissolved in industrial spirit, benzol and acetone. To this solution wood flour is added. Various formulae are given for the combination of these ingredients, and the limits within which the proportions may be varied are stated.

The claims in issue follow:

5. A doughy, putty-like plastic composition comprising nitro-cellulose in a solution containing a volatile liquid, and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.

6. A doughy putty-like plastic composition comprising nitro-cellulose in a solution containing a volatile liquid and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood, said filler being present in not less than fifteen parts by weight.

8. A doughy putty-like plastic composition, comprising

nitrocellulose in a solution containing a volatile liquid, a non-drying oil and a finely divided wood filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.

11. A doughy putty-like plastic composition, comprising nitrocellulose in a solution volatile in part at least and containing a ketonic liquor, a non-drying oil, and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood, said filler being present in not less than fifteen parts by weight.

13. A doughy putty-like plastic composition comprising nitrocellulose in a solution volatile in part at least and containing acetone, castor oil, a resinous body, and a finely divided cellulose filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.

15. A doughy, putty-like plastic composition comprising nitrocellulose in a solution containing a volatile liquid, a non-drying oil, and a resinous body, and a finely divided wood filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood, said wood filler being present in not less than fifteen parts by weight.

16. A doughy, putty-like plastic composition comprising nitrocellulose in a solution containing a volatile liquid, a non-drying oil, and a resinous body, and a finely divided wood filler in such proportions as to harden upon mere exposure to air to substantially the rigidity and solidity of wood.

17. A composition of matter for hole filling and filleting, which before exposure to the air is dough-like and putty-like, and contains finely divided wood, nitrocellulose and a volatile liquid, and after exposure to the air has a wood-like rigidity and solidity and is essentially finely divided wood held together by the nitrocellulose.

18. A composition of matter for hole filling and filleting, which before exposure to the air is dough-like and putty-like and contains a volatile liquid, nitrocellulose, and about 15 to about 30 percent by weight of finely divided wood, and which after exposure to the air has a wood-like solidity and rigidity

and is essentially the finely divided wood held together by the nitrocellulose.

In the combination described in these claims the nitrocellulose is the ingredient upon which all else depends. Without it there would be no plasticity and no hardening into the solidity of wood. Nitrocellulose, with which everyone is familiar when it appears in the form of celluloid, is the result of treating cotton or other vegetable fibre in nitric acid or in a mixture of nitric acid and sulphuric acid. It may be reduced to a plastic mass by the use of a suitable solvent, and in this state it may be moulded into any desired form and hardens permanently into that form upon evaporation of the solvent. If applied in its plastic form it will adhere firmly to almost any clean surface. These are the properties of nitrocellulose that the patentee employs. By mixing wood flour with plastic nitrocellulose he obtains a putty-like material which remains plastic until exposed to the air. Packed in air-tight cans or tubes it is available for use by the consumer very much as ordinary putty is used. It adheres to any wooden surface and solidifies quickly to the hardness of wood. Like wood, it may be sawed, whittled, planed, bored, painted, varnished, or treated in any way that wood might be treated.

Griffiths' composition has many uses. It was first produced in England to meet a demand from shoe manufacturers for a material with which shoemakers could restore the surface of shoe lasts when they become pitted with nail holes after repeated use. It is now in common use, not only by shoemakers, but by carpenters, painters, and boat repairers, and it is also much used for small repairs in the home.

The invention has been a commercial success. The plaintiff's president testified that the annual sales are about two and a half million units a year, a unit being either a can or a tube. It has had the flattery of imitation. During the years after it was put on the market and while the patent was pending, imitators flocked in with preparations under such names as Arco Synthetic Wood, Handy Wood, Dandee Wood Patch, Flex Wood, Patch Wood, Patching Wood, Limber Wood, Dum Dum Workable Wood, Wood Paste,

Wood Plaster, Tilette Canned Wood, Tremo Plastic Wood, Fixit Mending Wood, Magic Wood,—all names suggesting the character of the appeal which the product makes to the public as a handy preparation for small repairs. The defendant's product is marketed as Wood Dough.

The defendant has put in evidence eighty-five patents and several excerpts from textbooks and publications. Perhaps it is not true that many of the patents are merely paper patents, but in other respects what was said by the Circuit Court of Appeals in *Naylor* v. *Alsop Process Company*, 168 Fed. 911, 917, might be repeated here. In that case the Court said:

> "Defendants have ransacked patent offices in America and Europe, and brought together a formidable collection of patents. Many of them are paper patents, and others relate to remote arts. Piecing together excerpts and elements from this wide search, they have built up a formidable speculative argument to show how simple and easy was the step taken by Andrews. This is a form of argumentation familiar in patent litigation. Though it seldom succeeds, it is often the only recourse of the infringer. The patent law, however, has its proper place in the realm of actual industrial life, and not in the limboes of parchment casuistry. The merit of a patent is to be determined, not by its standing in dialectics, but by its actual effects in the art to which it belongs. Judged by that test, the Andrews invention was revolutionary. Within five years after its discovery it had been generally applied in the milling business, both in this country and abroad. It accomplished a new and desired industrial result simply, cheaply and efficiently. In the presence of such an experience, speculative arguments based on the prior art can seldom prevail."

It is unnecessary to single out any one of these eighty-five patents for particular comment. It is enough to say that they show that inventors, at least since 1855, have been experimenting with the properties of nitrocellulose. Aside from the manufacture of celluloid, which is one of its most conspicuous uses, it has been employed, and patents have been taken out for its use, as a coating for

fabrics and as a lacquer. It has been mixed with various types of filler,—animal, vegetable and mineral,—and the mixtures have been moulded into a great variety of useful articles. Castor oil and resins have been a part of the mixtures. In one or two instances at least, inventors have mixed nitrocellulose with sawdust to make artificial wood.

The significant thing that emerges from an examination of the prior art and the evidence of widespread knowledge of the properties of nitrocellulose which it affords, is that nobody thought of making it available in the workshop and in the home in the form of a convenient putty for repairs to articles made of wood. The deposition of Carlton Ellis is interesting as an illustration of this. Ellis, who testified that he had been engaged for many years in research in the field of resins and plastics and had taken out perhaps a thousand patents relating to subjects in that field, including nitrocellulose compositions, said that it had been many times a matter of regret to him that Griffiths' idea of a putty-like material which would harden to resemble wood had never occurred to him. The same thing is brought out in another way by the testimony of the former manager of the plaintiff's factory, who told how difficult it was at first to introduce their product to dealers because of their skeptical attitude towards a thing so unheard of.

Lapse of time, during which all the principles upon which an invention depends have been widely known, and its beneficial result when at last it comes, have often been held decisive of the question of invention. Thus the Supreme Court in *Loom Company* v. *Higgins*, 105 U. S. 580, 591, says:

> "It is further argued, however, that, supposing the devices to be sufficiently described, they do not show any invention; and that the combination set forth in the fifth claim is a mere aggregation of old devices, already well known; and therefore it is not patentable. This argument would be sound if the combination claimed by Webster was an obvious one for attaining the advantages proposed,—one which would occur to any mechanic skilled in the art. But it is plain from the evidence, and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to even the

> most skillful persons. It may have been under their very eyes, they may almost be said to have stumbled over it; but they certainly failed to see it, to estimate its value, and to bring it into notice. Who was the first to see it, to understand its value, to give it shape and form, to bring it into notice and urge its adoption, is a question to which we shall shortly give our attention. At this point we are constrained to say that we cannot yield our assent to the argument, that the combination of the different parts or elements for attaining the object in view was so obvious as to merit no title to invention. Now that it has succeeded, it may seem very plain to anyone that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result, never attained before it, it is evidence of invention."

Two recent cases illustrate the application of this principle in arts analagous to that of the patent in suit.

In *Yablick* v. *Protecto Safety Appliance Corporation,* 21 Fed. (2d) 885, the court had before it a patent for a gas mask. It was shown that the property of the chemical upon which the success of the mask depended, the fact that it would absorb the noxious gas against which the mask was designed to give protection, had been pointed out in a work on chemistry. But the court said: "This fact was not translated into commercial utility until the genius of the patentee did it."

In *Denner* v. *Sheer Pharmacal Corporation,* 64 F. (2d) 217, the patent was for a depilatory. The patentee had taken well known depilatating agents and combined them with colloid-like substances, also well-known, to produce a depilatory which could be applied in the form of a cream. The cream form was much more satisfactory to the public than anything that had been on the market previously, and on this ground the patent was sustained.

Black & Decker Manufacturing Company v. *Biltmore Trust Tire Service Corporation,* 40 Fed. (2d) 910, is an illustration in a different art.

Besides its reliance upon the prior art, the defendant urges that there was no invention in what Griffiths did, because, as the testimony shows, his combination was developed in response to an inquiry for a suitable filler for shoe lasts, and the discovery was made in the ordinary course of laboratory experiment. There is nothing in this to make it any the less an invention. The patent laws do not insist upon anything dramatic in the discoveries which they protect. An invention may be patentable, although it is "the result of experiment, and not the instant and perfect product of inventive power. A patentee may be baldly empirical, seeing nothing beyond his experiments and the result; yet if he has added a new and valuable article to the world's utilities, he is entitled to the rank and protection of an inventor." *Diamond Rubber Company* v. *Consolidated Rubber Tire Company*, 220 U. S. 428, 435.

Another contention upon the issue of invalidity is that the claims of the patent are broader than the specification. The basis of this is the use in the claims of the words "doughy, putty-like" to describe the plastic composition covered by the claims, and the phrase "to harden upon mere exposure to air to substantially the rigidity and solidity of wood". It is true that the specification does not describe the product as doughy and putty-like, but this is only another way of describing it, as the specification does, as plastic. It is also true that the specification does not point out that the mixture hardens to the rigidity and solidity of wood, but it does say that it is to be used for filling and for molding, and that it hardens quickly when exposed to the air. The patentee is not bound to use in his claims the precise phraseology with which he sets forth the invention in his specification. Indeed, claims may be changed, as a result of proceedings in the patent office, to express more adequately the true nature of the invention. *Cleveland Foundry Company* v. *Detroit Vapor Stove Company*, 131 Fed. 853.

The defendant also argues from the evidence of public use of the Griffiths product in England, without any application for a patent there, that Griffiths should be held to have abandoned his invention. But this is plainly insufficient to show abandonment of the right to patent the invention in the United States. See *Gandy* v. *Main Belting Company*, 143 U. S. 587. Abandonment is a matter

of intent to be clearly proved, and an application for a patent is in itself persuasive proof that the applicant has no intention to dedicate his invention to the public. *Ide* v. *Trorlicht, Dumcker & Renard Carpet Company,* 115 Fed. 137, 144.

Defendant's counsel do not argue in their brief that the defendant's product does not infringe the patent. The only testimony upon the point is the analysis of that product by the plaintiff's chemist, which shows that the ingredients are the same as those of the patent, except for the substitution of toluol for benzol as a solvent, and that they are combined in substantially the same proportions as those of the plaintiff's commercial product, which also makes the same substitution of toluol for benzol.

I conclude that the claims in suit are valid and infringed.

Let there be a decree against the defendant Harris-Thomas Company for an injunction and an accounting, with costs.

As to the defendant Low Supply Company, the bill is dismissed, and it should recover its costs.